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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,139	10/22/2003	Yoshikazu Takahashi	501558.20005	9158

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REED SMITH, LLP
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EXAMINER

MRUK, GEOFFREY S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,139

Applicant(s)

TAKAHASHI, YOSHIKAZU

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,11 and 12 is/are rejected.
- 7) ☒ Claim(s) 3,4 and 6-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6 September 2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 11, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi (US 5,402,159).

With respect to claim 1, Takahashi discloses a droplet ejecting apparatus (Fig 2), comprising:

- a channel unit (Fig. 7, element 34) having a pressure chamber (Fig. 7, element 32) which communicates, at a first end thereof, with a liquid supply manifold so as to be supplied with a liquid by the liquid supply manifold and, at a second end thereof, with a nozzle so as to eject a droplet of the liquid through the nozzle (Column 7, lines 10-50); and
- an actuator unit (Fig. 7, element 38) fixed to the channel unit, wherein the actuator unit has a plurality of active portions (Fig. 3, elements 44a-44c) which are opposed to said pressure chamber at respective different positions along said pressure chamber and
- each of which includes a piezoelectric sheet (Fig. 3, element 40), and
- a first electrode (Fig. 3, element 42) and a second electrode (Fig. 3, element 44) which are opposed to each other in a direction of thickness of the piezoelectric

sheet that is parallel to a direction in which said each active portion is opposed to said pressure chamber, such that the first and second electrodes cooperate with each other to sandwich a the piezoelectric sheet and

- wherein when an electric voltage (Fig. 4, element 60) is applied across the first and second electrodes of said each of the active portions, the active portions are deformed to change a volume of said pressure chamber (Column 7, lines 26-45).

With respect to claim 2, Takahashi discloses the respective piezoelectric sheets (Fig. 3, element 40) of the plurality of active portions (Fig. 3, elements 44a-44c) comprise respective portions of a common piezoelectric sheet, and are polarized (Column 6, lines 32-47) in a direction of thickness of the common piezoelectric sheet, and wherein when an electric field is applied to the piezoelectric sheet of each of the plurality of active portions in a same direction as the direction of polarization thereof (Column 7, lines 15-25), said each active portion is elongated in the direction of thickness of the common piezoelectric sheet.

With respect to claim 5, Takahashi discloses an outer end portion of an outermost one of the plurality of active portions (Fig. 6, element 50) opposed to the pressure chamber (Fig. 7, element 32) is located at a position corresponding to a vicinity of an end portion of the pressure chamber (Plan view of Fig. 6 and Fig. 7).

With respect to claim 11, Takahashi discloses the channel unit (Fig. 7, element 34) has a plurality of pressure chambers (Fig. 7, array of element 32) which communicate, at respective first ends thereof, with a common liquid supply manifold (Fig. 2, element 16) so as to be supplied with a liquid by the common liquid supply manifold and, at

respective second ends thereof, with respective nozzles so as to eject respective droplets of the liquid through the respective nozzles, and wherein the plurality of active portions comprise a plurality of groups of active portions each group of which includes at least two active portions which are opposed to a corresponding one of the plurality of pressure chambers.

With respect to claim 12, Takahashi discloses the common liquid supply manifold (Fig. 2, element 16) comprises an ink supply manifold which supplies an ink as the liquid, and wherein the actuator unit changes a volume of each of the pressure chambers of the channel unit, so as to eject, from a corresponding one of the nozzles, a droplet of ink as the droplet of liquid and thereby form an image on a recording medium (Column 1, lines 18-32).

Allowable Subject Matter

Claims 3, 4, and 6-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 13 is allowed.

The following is an examiner's statement of reasons for allowance: The primary reasons for allowance of claim 13 is that applicant's claimed invention includes a droplet ejecting apparatus having a ratio of the sum of respective lengths of the elongate active portions to a length of the elongate pressure chamber is not smaller than 0.7 and

smaller than 1. It is this limitation, expressed in the claimed combination not found, taught, or suggested in the prior art, that makes this claim allowable over the prior art.

The examiner makes of record the previous claim rejections dated 5 May 2005 are withdrawn in view of applicant's remarks.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GSM
12/14/2005

A handwritten signature consisting of the letters 'G' and 'M' in a cursive, stylized font.